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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,860	01/09/2002	Dion Ivo De Roo	47161-00019USPT	5317

30223 7590 12/16/2005

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EXAMINER
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ENSEY, BRIAN

ART UNIT	PAPER NUMBER
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2646

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/042,860	<b>Applicant(s)</b> DE ROO ET AL.	
	<b>Examiner</b> Brian Ensey	<b>Art Unit</b> 2646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,14,17,18,24,30-32,34,35,39 and 48-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-9,11-13,15,16,19-21,25-27,33,36,37,40,41 and 43-47 is/are rejected.
- 7) ☒ Claim(s) 10,22,23,28,29,38 and 42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/9/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species I, Figures 3 and 4, claims 1, 2, 5-13, 15, 16, 19-23, 25-29, 33-38 and 40-47 and discussed with the applicant's representative, Justin Swindells, by phone on 11/29/05 is acknowledged.

Claims 34 and 35 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 34 and 35 read on a microphone having two acoustical conduits, one being external to the microphone housing and the other being internal to the microphone housing. This embodiment is not illustrated in the current drawings and also reads on both Species I and Species II which have been determined to be patentably distinct. Since applicant has elected Species I for examination, claims 34 and 35 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12, 33 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what is meant by "as represented by the electrical analogy." It is recommended the applicant delete "as represented by the electrical analogy" from the aforementioned claims.

Claims 12, 33 and 44 recites the limitation "the electrical analogy" in the last line of each of the aforementioned claims. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5, 6, 9, 13, 15, 16, 25, 26, 36, 37 and 45-47 rejected under 35 U.S.C. 102(b) as being anticipated by Johanson et al. U.S. Patent No. 3,836,732.

Regarding claim 1, Johanson discloses a directional microphone, comprising: a housing (28); a diaphragm dividing said housing into a front volume and a back volume (inherent in Knowles directional microphone); electronics for detecting signals corresponding to movements of said diaphragm (See col. 2, lines 27-33); a front inlet to said front volume (30); a back inlet to said back volume (36); and an elongated acoustical conduit (26) connecting said front volume and said back volume (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 5, Johanson further discloses said acoustical conduit has acoustical characteristics that are predominantly inductive, rather than resistive (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 6, Johanson further discloses said front and back inlets include inlet tubes (30,32) (See Fig. 2).

Regarding claim 9, Johanson further discloses said acoustical conduit (26) is positioned external to said housing (28) (See Fig. 2).

Regarding claim 13, Johanson further discloses said acoustical conduit is a cylindrical tube (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 15, Johanson discloses a directional microphone (28), comprising: a moveable structure producing signals responsive to sound energy and dividing a front volume from a back volume (inherent in Knowles directional microphone), said front volume and said back volume being exposed to the environment for receiving said sound energy; and a wind noise suppression conduit (26) acoustically connecting said front volume and said back volume (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 16, Johanson further discloses said wind noise suppression conduit is located external to a housing in which said moveable structure is disposed (See Fig. 2).

Regarding claim 25, Johanson further discloses said wind noise suppression conduit is located external to a housing of said directional microphone and connects sound inlets leading to said front and back volumes (See Fig. 2)

Regarding claim 26, Johanson further discloses said wind noise suppression conduit has a circular internal opening (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 36, Johanson discloses a method of suppressing wind noise in a directional microphone having a front and back volume, comprising: acoustically connecting said front volume and said back volume with an elongated conduit having an acoustical inertance (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 37, Johanson further discloses connecting occurs between a front inlet

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tube leading into said front volume and a back inlet tube leading into said back volume. (See Fig. 2).

Regarding claim 45, Johanson discloses a method of preventing a low frequency overload due to wind noise in a directional microphone having a front volume and a back volume separated by a diaphragm, comprising: adding an acoustical inductive element in parallel with said diaphragm (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 46, Johanson further discloses said adding includes connecting said front volume and said back volume with an elongated acoustical conduit (See Fig. 2 and col. 2, lines 49-63).

Regarding claim 47, Johanson further discloses said adding includes connecting inlets to said front volume and said back volume at a location external to a housing of said directional microphone (See Fig. 2 and col. 2, lines 49-63).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 2, 7, 11, 19, 20, 40 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johanson as applied to claims 1 and 36 above, and further in view of Killion et al. U.S. Patent No. 6,285,771.

Regarding claims 2 and 40, Johanson discloses said directional microphone having a 6 dB/octave low frequency roll-off (Typical for a directional microphone as disclosed by the applicant's specification page 2, lines 14-17). Johanson does not expressly disclose said acoustical conduit is configured to have an acoustical inertance to provide an additional 6 dB/octave low frequency roll-off. However, Killion teaches using inlet screens on the inlets of a directional microphone (See Fig. 4 and col. 6, line 67 to col. 7, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the screens of Killion on the inlet tubes of Johanson to provide for response smoothing and time delay for proper directional operation (See Killion col. 6, line 67 to col. 7, line 4). Further, the use of the screens with the acoustical conduit provide an additional 6 dB/octave low frequency roll-off (This is also taught in the applicant's specification on page 4, lines 7-10). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention that the structure of Johanson duplicates the structure of the applicant, thereby producing equivalent results.

Regarding claim 7, Johanson discloses a microphone as claimed. Johanson does not expressly disclose said inlet tubes include a screen structure. However, the use screens on microphone inlet tubes is well known in the art and Killion teaches using inlet screens on the inlets of a directional microphone (See Fig. 4 and col. 6, line 67 to col. 7, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the

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screens of Killion on the inlet tubes of Johanson to provide for response smoothing and time delay for proper directional operation (See Killion col. 6, line 67 to col. 7, line 4).

Regarding claims 11, 19, 20 and 43, Johanson discloses said directional microphone having a 6 dB/octave low frequency roll-off (Typical for a directional microphone as disclosed by the applicant's specification page 2, lines 14-17). Johanson does not expressly disclose said directional microphone has a frequency response curve with a 12 dB/octave roll-off at frequencies below about 2.0 kHz and further below 500 Hz. However, Killion teaches using inlet screens on the inlets of a directional microphone (See Fig. 4 and col. 6, line 67 to col. 7, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the screens of Killion on the inlet tubes of Johanson to provide for response smoothing and time delay for proper directional operation (See Killion col. 6, line 67 to col. 7, line 4). Further, the use of the screens with the acoustical conduit provides an additional 6 dB/octave low frequency roll-off (This is also taught in the applicant's specification on page 4, lines 7-10 resulting in a low-frequency roll-off of 12 dB/octave). Killion also teaches that adjusting resistor 202 can vary the low-frequency roll-off between 200 Hz and 2 kHz (See Fig. 10 and col. 9, lines 31-53). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the desirable low-frequency roll-off range is below 2 kHz and as low as 200 Hz and the structure of Johanson duplicates the structure of the applicant, thereby producing equivalent results.

5. Claims 8, 21 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johanson as applied to claims 1, 15 and 36 above, and further in view of Killion et al. U.S. Patent No. 6,151,399.



Regarding claims 8, 21 and 41, Johanson discloses a microphone as claimed. Johanson does not expressly disclose said acoustical conduit has a length of from about 1 mm to about 6 mm. However, Killion teaches a typical directional microphone capsule with input ports 4 mm apart (See Fig. 4 and col. 7, lines 52-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the inlet ports of Johanson's microphone 4 mm apart and thereby necessitate the acoustical conduit to have a length of from about 1 mm to 6 mm.

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johanson et al.

Regarding claim 27, Johanson does not expressly disclose said wind noise suppression conduit has a rectangular internal opening. However, Johanson does not limit the configuration of the conduit and it would have been obvious to one of ordinary skill in the art at the time of the invention that any shaped conduit may be used to connect the microphone input ports.

#### *Allowable Subject Matter*

7. Claims 10, 22, 23, 28, 29, 38 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
P.O. Box 1450  
Alexandria, Va. 22313-1450

**Or faxed to:**

(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".  
Hand-delivered responses should be brought to:

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**SINH TRAN**  
**SUPERVISORY PATENT EXAMINER**

BKE  
December 2, 2005